

**Determining Staffing Requirements
for the Professional Development & Training Division
of the Amalgamated Toronto Fire Services**

EXECUTIVE LEADERSHIP COURSE

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ABSTRACT

Driven by public pressures to reduce spending and control the deficit, the provincial government (Ontario) passed the City of Toronto Act, 1996 (Bill 103). Effective January 1, 1998, this legislation forced the amalgamation of seven municipal governments in Metropolitan Toronto, and six municipal fire departments.

As a result, Toronto Fire Services' new management team had to effectively merge six independent fire departments into one functional unit, within tight budget constraints.

The purpose of this research project was to first determine the training and education needs for the amalgamated fire department and then provide documentation to support the required staffing levels for the Professional Development and Training Division of Toronto Fire Services. This research was undertaken employing both an historical and descriptive research methodology. The following research questions were pursued:

1. What staff functions, as recommended in the fire service literature, are appropriate for the Professional Development and Training Division?
2. What are the training and education needs of the amalgamated Toronto Fire Services?
3. What resources and organizational structure are required to effectively meet those needs?
4. What options/alternate delivery systems are available to enhance professional development and training initiatives?

Published literature was reviewed to determine its relevance to the problem. Surveys were conducted to determine training requirements. The analysis examined effective past practices and projected them into the anticipated needs of the new organization. A statistical analysis determined the personnel required to deliver the recommended programs and the number of people required to maintain minimum staffing levels.

The study found that 60 full time equivalent (FTE) positions, plus supervisory staff, were required to effectively deliver training and development programs to Toronto Fire Services.

The research supported the recommendation that City Council make the resources available to the fire chief to adequately staff the Professional Development and Training Division, and that division staff actively pursue alternate delivery methods and revenue generating opportunities to help offset operational costs.

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INTRODUCTION

Prior to January 1st, 1998, the Municipality of Metropolitan Toronto (Metro) was made up of seven municipal governments: Metro Toronto, five cities (Etobicoke, North York, Scarborough, Toronto, and York) and one borough (East York). While police and ambulance services were Metro responsibilities, each of the cities and the borough operated its own autonomous fire department.

Driven by public pressures to reduce spending and control the deficit, the majority Progressive Conservative Government passed the City of Toronto Act, 1996 (Bill 103), replacing the seven existing municipal governments of Metro by incorporating a new municipality known as the City of Toronto. The goal of this legislation was to eliminate waste and duplication, improve accountability, increase efficiencies and cut costs. The provincial government also announced that they were downloading the financing of many programs and services to the municipalities. This put tremendous pressures on the new City of Toronto, and consequently the fire department, to balance the goals of no tax increase without service decreases.

Effective January 1, 1998, Bill 103 created the new City of Toronto and forced the amalgamation of the six Metro fire departments. As a result, Toronto Fire Services' new management team must effectively merge six independent fire departments into one functional unit, within tight budgetary constraints.

The purpose of this research project was twofold; determine the training and education needs for the amalgamated fire department and then provide documentation to support the required staffing levels in the newly created Professional Development and Training Division.

This study uses historical and descriptive research methodology to answer the following questions:

1. What staff functions, as recommended in the fire service literature, are appropriate for the Professional Development and Training Division?
2. What are the training and education needs of the amalgamated Toronto Fire Services?
3. What resources and organizational structure are required to effectively meet those needs?
4. What options/alternate delivery systems are available to enhance professional development and training initiatives?

BACKGROUND AND SIGNIFICANCE

For each course in the Executive Fire Officer Program students are required to complete an applied research project that investigates a key issue or problem that has been identified as being important to their fire service organization.

City of Toronto Overview

The City of Toronto is the capital of the Province of Ontario. It has a multicultural community with people from 140 different countries speaking over 80 different languages. Until the beginning of this year, the City of Toronto formed part of the Municipality of Metropolitan Toronto (Metro). Metro consisted of seven municipal governments: Metro Toronto, the Cities of Etobicoke, North York, Scarborough, Toronto and York and the Borough of East York. Each jurisdiction operated its own fire department. Police and ambulance were Metro responsibilities.

Amalgamation Background Information

The issue of amalgamation has followed Toronto Fire Services ever since the creation of Metropolitan Toronto in 1953 with the Municipality of Metropolitan Toronto Act. This union unified the local police services in 1957 and the Metro Ambulance Service in 1971. The Metro fire departments have remained at the local or municipal level after various studies had concluded that amalgamation was not practical.

In the past thirty years there have been several reviews of Metro's structure. The Goldenberg Commission in the 1960's recommended that the remaining thirteen municipalities of Metro be

amalgamated into the present day six by 1967. When considering fire service amalgamation under the jurisdiction of the Metro Council, the Honourable John P. Robarts (1977) cited strong arguments for both sides. He did however, recommend that a committee of fire chiefs be established as the forum to develop solutions to inter-municipal fire protection problems for consideration by the area municipal councils. Wedge (1987) questioned the political feasibility of amalgamation, in spite of the overall cost saving which he determined would be theoretically possible.

On the other hand, Thomas (1994) made the point that consolidation could allow more efficient use of scarce resources, greater staff flexibility, fewer equipment needs, stronger internal programs and increased opportunities to expand or specialize services. Ernst & Young (1995) believed that there would be a tremendous potential to achieve economies of scale, cost savings, improved coordination and appropriate timely response times. The accounting firm KPMG (1996) anticipated consolidation and efficiency enhancements by moving from six to one fire service.

While there was considerable cooperation between the Metro Fire Chiefs in implementing many programs including mutual aid assistance, and the enhanced 9-1-1 emergency response network, each department operated autonomously with its own command structure, policies and procedures, collective agreement, specialized apparatus and equipment, radio system and communications centre, and training centre.

The Catalyst for Change

In the last couple of years, there were numerous conflicting studies, commissioned by various levels of government, around governance and restructuring in the Province of Ontario. The reports

contained proposals to eliminate the Metro level of government (Mayors of Toronto, North York, Etobicoke, Scarborough, York and East York, 1996), eliminate the municipal level of government (Ernst & Young, 1995), create stronger cities (Golden, 1996), move from six cities to four cities (Mayors of Toronto, North York, Mississauga and Oakville, 1996) to one city (Crombie, 1996). They recommended devolution of the ambulance service to the six fire departments (City of Toronto, 1996; Golden, 1996) to keeping the status quo (Ernst & Young, 1996) to amalgamating the six fire departments into one (KPMG, 1996). Common goals appear to be the elimination of waste and duplication, improved accountability, increased efficiency, and resulting cost savings.

Driven by public pressures to reduce spending and control the deficit, the majority Progressive Conservative Government passed the City of Toronto Act, 1996, replacing the seven existing municipal governments of Metropolitan Toronto by incorporating a new municipality known as the City of Toronto. Effective January 1, 1998, this legislation forced the amalgamation of the six cities and borough, and their corresponding fire departments.

The “New” Toronto Fire Services

The amalgamated fire department is called Toronto Fire Services (TFS). TFS serves and protects 2.3 million permanent residents in a 629 km² (243 mile²) area. The current establishment of TFS is 3,149 personnel. The department operates 80 fire stations with 134 staffed apparatus. In 1997, the combined Metro fire departments responded to 110,018 emergency calls. This translates into 225,783 apparatus runs. The 1998 TFS operating budget is estimated to be \$223 million dollars.

Toronto Fire Services is a total fire and rescue service involving many diverse functions: fire

suppression and rescue (auto extrication, high angle, machinery, confined space, water and ice and soon heavy urban search and rescue), hazardous materials control, pre-hospital emergency medical services including defibrillation, response to terrorist incidents, emergency planning preparedness and response, fire prevention and public education.

For mostly safety-related reasons (three different manufacturers of self contained breathing apparatus, six different incident command systems, six different radio communication systems), the fire chief initially divided the new department into four operational commands: North (North York), South (Toronto), East (Scarborough and East York), and West (Etobicoke and York).

The TFS executive team consists of the fire chief, and four deputy fire chiefs responsible for: Operational Services; Fire Prevention and Fire Safety Education; Professional Development, Training and Mechanical Maintenance; and Staff Services, Administration and Communications.

Significance

This research is important to Toronto Fire Services for the following reasons:

- ☐ Outlines the Department's professional development and training requirements as validated by experienced chief training officers.
- ☐ Provides documentation to justify staffing requirements for the Professional Development and Training Division.
- ☐ Identifies delivery options to enhance professional development and training initiatives.
- ☐ Helps set-up a smooth transition process - the major stakeholders were consulted and provided input into the research and recommendations.

This research is directly related to “Unit 11: MANAGING CHANGE”. This chapter focussed on the issue of organizational change - specifically the impact on organizational processes and performance. Due to the forced amalgamation of six fire departments, the new Toronto Fire Services is undergoing significant organizational change. This restructuring requires staff development if it is to be successful. This research paper provides a framework to facilitate and manage the externally imposed changes to Toronto Fire Services, specifically for the training component of the newly created Professional Development and Training Division.

LITERATURE REVIEW

Introduction

This literature review is divided into three sections corresponding to the issues typified by the research questions: Staff Functions, Required Staff Resources, Supporting Organizational Structure, and Delivery Options.

Staff Functions

The National Fire Protection Association (NFPA) outlines basic principles of organization that are applicable to the fire service. One of these principles is that work should be divided among the individuals and operating units based on individual functions that must be performed (NFPA, 1992).

The NFPA differentiates between line functions - those normally involved with fire suppression operations, and staff functions - those activities that do not involve dealing with day-to-day emergency

incidents. An important staff function identified is the training “of all personnel in their job skills; administering continuing education programs in special subject areas; administering the department’s safety program; and organizing pre-fire planning.”(p.9-39).

The findings of the International City Management Association (ICMA) indicate a “cradle-to-grave” relationship - a personnel development program that essentially integrates recruitment, selection, training and education, career planning, career counseling, performance appraisal, and health and safety considerations into a single system and unit. The goals of personnel development are to improve the performance of incumbent personnel and to create a pool of qualified personnel for all positions in the department. In addition, the ICMA recognizes the need for a careful program of management development for top decision makers. Personnel development integrates the concepts of career development and management development. Major components of personnel development, as identified by the ICMA are training, health and safety (ICMA, 1988).

The Professional Standards Setting Body (PSSB) for the Ontario Fire Service sets minimum performance standards for all levels of the Ontario Fire Service. The standard for training officer describes the role of the training officer in terms of 12 general areas of competencies. In addition to developing, coordinating, managing, assessing and delivering training programs, including occupational health and safety programs, the PSSB recognizes the need for training officers to participate in career days, supervise cooperative education students, conduct outreach seminars for recruitment of target groups, prepare promotional materials for recruitment, and conduct pre-recruitment seminars (PSSB, 1991).

The City of Toronto Fire Department Master Fire Plan Steering Committee (COT) conducted a

needs analysis and found that the department and the community would be better serviced by consolidating training, medical, health, fitness and safety, and recruitment and community outreach into one group. They determined that this structure met the changing needs for increased safety and training, and provided a link between training and recruiting. In addition, the integration of these units emphasized the important concept that everyone on the department was responsible for safety, training and recruitment (COT, 1994).

According to the Occupational Health and Safety Act, 1990 (OHSA), an employer shall, when appointing a supervisor, appoint a competent person. In this Act, a competent person means a person who is qualified because of knowledge, training and experience to organize the work and its performance. Additional duties of employers include carrying out training programs for worker, supervisors and health and safety committees (OHSA, 1994).

After a review of current operations, the Metropolitan Toronto Fire Services Review Team (1997) identified the areas of responsibility for the amalgamated Training Division to include: recruit training, officer development, health, fitness and safety, planning, research and development, in-service fire fighter training, and development and administration of incremental and promotional examinations.

There appears to be a consensus in the published materials referenced that safety is an integral part of the training function. The ICMA, PSSB and COT see a natural link between training, recruiting and community outreach activities while only NFPA and the Metropolitan Toronto Fire Services Review Team recommend that the training function include emergency planning. Obviously, training is a diverse function. The researcher must consider the merits of including recruitment and community outreach, health, fitness and safety, and emergency planning in the proposed structure of the

Professional Development and Training Division of TFS.

Required Staff Resources

The report of the Metropolitan Toronto Fire Services Review Team (1997) proposed organizational structural changes for the amalgamated TFS. The team compared current and proposed staffing for the Training Division. The result was to add one staff position to the current establishment of the combined training divisions; from 41 to 42 FTE positions, including supervisory staff.

Walker (1997) developed a methodology for establishing staffing levels and budgets for Oregon State Police. “Generally, the workload can be determined by conducting a detailed look at exactly every function that the employee does during the course of their shift.” (p.6). His other consideration was the percentage of time that each position within the operation spent on a particular function. Walker also outlined a statistical analysis to determine how many people are required on each shift actually sitting at a emergency communications console performing a specific function. He then went on to determine exactly how many people, in total, it takes to fill those positions.

Although not directly applicable, Walker’s methodology can be modified for use in this study. Because each position on the department is coming under scrutiny by those who control the budget dollars, this documentation is important to justify and support staffing requirements.

Supporting Organizational Structure

One of the NFPA’s organizational principles is the increased need for coordination as the department increases in size and complexity. (NFPA, 1992). Another principle is that lines of authority must be established. The final organizational principle is the unit of command. The NFPA notes that

supervisors who guide too many individuals tend to commit a major portion of their time to supervising subordinates, thereby ignoring other important managerial duties (NFPA, 1977). NFPA 1201, Standard for Developing Fire Protection Services for the Public maintains that modern management practice suggests that an effective span of control should include five to seven units (NFPA, 1994). The International City Management Association (ICMA) agrees that supervisors need to be assigned a group that is of manageable size but expects most supervisors, under non-emergency conditions, to supervise seven to twelve people (ICMA, 1988).

The documentation is divided as the an effective span of control. The researcher will use the recommendation from the NFPA standard; it is more recent and relevant.

There were two studies that directly addressed organizational structure in an amalgamated Toronto Fire Service. An independent task force chaired by Wedge (1987) presented a report to Toronto City Council “Working Paper on Fire Department Amalgamation” proposing four command areas for any amalgamation structure. He determined that the new organization could tailor its services to meet the special needs of specific districts; an inevitable result of demands for standardization and uniformity of service at the time of amalgamation. The Metropolitan Toronto Fire Services Review Team (1997) also identified four commands, mirroring the operational commands, for training as well as a Toronto Fire Academy location that included recruit and officer training, health, safety and emergency planning and research functions.

Delivery Options

NFPA 1201, Standard for Developing Fire Protection Services for the Public outlines several

options for delivering training:

Section 8-4 Special Functions . The officers in charge of fire prevention, maintenance, communications, and other specialized bureaus shall be responsible for special training needed by the personnel assigned to their particular staff function. They shall coordinate this special training with other programs of the department and with the training officer. **Section 8-5**

Education and Training of Company Officers . Courses for the education and training of company officers shall be provided by the training officer. Departments that do not offer comprehensive training courses shall arrange to provide such courses at any appropriate educational institution or fire department training facility.

Section 8-6 Training of Company Members . Company officers shall be responsible for the ongoing, in-service training of members of the company assigned to them, since the unit must work together as an effective team (NFPA, 1994).

Along the same line, the Ontario Office of the Fire Marshal (OFM) designates trainer/facilitators (T/F) to guide fire fighters through the studies involved with its curriculum. The T/F also is responsible for grading on final performance tests (OFM, 1994).

In addition to traditional training programs, the NFPA recommends that fire departments not overlook well-organized and operated education programs available locally, regionally, and nationally. Some of these programs might be run by community colleges, universities, state or provincial fire academies, and the (U.S.) National Fire Academy (NFPA,1994).

It is clear that training officers alone do not have to deliver all professional training and development programs to department members. Using company officers, specially trained fire crews,

city-run training programs, provincial training programs, private agency training programs and college training programs are just some of the options available to enhance training initiatives.

PROCEDURES

This project progressed through three stages: literature review of written documents related to the problem/challenge, an analysis of existing and required services, and a statistical review to determine the required resources to deliver the programs and services.

Literature Review

The researcher used the resources of the National Emergency Training Center (NETC) - Learning Resources Center (LRC), the Ontario Office of the Fire Marshal (OFM) - Fire Sciences Library, and the International Association of Fire Chiefs (IAFC) - Management Information Center to complete the literature review. The review included a search of recent (the last five years) issues of trade journals, books and reports related to the problem.

The books and articles identified through the literature search were reviewed and those that were deemed to be pertinent to the research problem were summarized for inclusion in the literature review section of this paper. The published materials provided a useful overview of current literature on recommended staff functions. While there were numerous documented studies and models related to fire ground staffing, there was limited information for the researcher to determine and justify the staffing needs for the functions studied in this report.

Analysis of Existing and Required Services

The strategy of the analysis was to examine effective past practices and project those into the anticipated needs of the new organization. Any gaps not filled by projecting past practices were then identified as new needs, and appropriate programs were to be proposed.

The data in this research are collected from responses to surveys. Due to the time commitments of staff involved in the amalgamation process, all surveys consisted of verbal requests for information at regularly scheduled meetings. During the course of this research, the following stakeholders provided input:

❑ Toronto Division - Chief Training Officer (CTO), Chief Health & Safety Officer, Chief

Recruitment Officer, Chief Planning & Information Officer (functions identified in the literature review as having relevance to the new division).

❑ Metro Chief's Training Subcommittee. Committee members consisted of chief training officers from each of the six previous fire departments.

These chief officers were selected because of their extensive experience and knowledge in their functional area.

Consultation occurred with each chief officer's entire staff during the development of this review. The chief officers relied extensively on the knowledge and expertise of individual staff officers and members. This process insured input from the most knowledgeable experts in the City of Toronto and the Province of Ontario.

In the initial process, the Toronto Division chief officers were asked:

1. "What programs and services does your section currently provide?"

2. “Based on legislative requirements, applicable standards, current priorities and anticipated training needs, what additional programs/services should we be delivering?”

Due to overwhelming number of programs and services provided in the combined functional areas and the time restriction on this research, it became obvious that the researcher should concentrate his efforts solely on the training component. Further study and analysis must be completed in the areas of health, fitness and safety, emergency planning, preparedness and response, and recruitment and community outreach.

After this initial survey pilot test, the Metro Chief’s Training Subcommittee members were asked the same questions.

Statistical Review

In the next step, the Toronto Division CTO was asked to conduct a detailed look at exactly every function that his staff did during the course of a shift. He surveyed his staff, via memorandum and informal meetings, to determine the amount of time spent on each function. This was based on their experiences over the last five to eight years. The Toronto Division CTO tabulated the results in a worksheet (Table I) using Correl Quattro Pro 7 software. A brief explanation of the input and output parameters are in Appendix A. The analysis required that certain assumptions be made with respect to policy, external liaisons, staffing numbers, emergency service delivery models, and other areas. The assumptions are detailed in Appendix B.

Recent recruit training for the City of Vaughan, conducted by TFS, formed the basis of the analysis for the recruit training segment. The Toronto CTO broke down the data by day into practical

and classroom (theory) hours along with associated preparation and administration times (Table II).

The worksheet was created using Correl Quattro Pro 7 software. A number of parameters were used for calculating the number of annual staff hours to maintain a program. The number of retirements for the six departments was calculated over the past five years, and averaged, to determine a normal attrition rate factor.

The in-service and recruit spreadsheets generated the number of instructor hours required to develop, deliver and maintain the programs. The calculations take into account leave taken, training time and administrative time (related correspondence and communication). These two calculations generated the total number of FTE positions required to deliver the range of programs with the given frequencies. The list of in-service courses was not an exhaustive list. In addition to providing an adequate sample of the courses that TFS would be required to deliver, the delivery ratio was calculated. This indicated the percentage of time instructors were required to spend in the classroom. This number is used in the capacity analysis spreadsheet.

The capacity analysis spreadsheet (Table III) attacks the problem from the opposite perspective. Instead of starting with the required or projected programs and generating staff requirements, this analysis looks at current capacity to deliver training programs. The data are based on capacities of current facilities and past practices regarding the assignment of operational staff to in-service and in-station training. See Appendix C for the data inputs and outputs.

In conjunction with their staff, the members of the Metro Chief's Training Subcommittee verified the data analysis.

The researcher then used Walker's (1977) methodology to calculate an assignment factor (AF),

the multiplier used to determine how many people are actually required to fill each staff position (Table IV). The number of calculated training staff per course (from the capacity analysis) was multiplied by the AF and compared to the calculation of dedicated staff required (from the capacity analysis spreadsheet) to ensure validity.

The final stage involved the Metro Chief's Training Subcommittee determining possible course delivery methods. An organization chart was created using Presentations 7 software.

Limitations to this analysis centred around the timing of the request. Each staff member surveyed was under a heavy workload due to the amalgamation process. The verification of the data analysis *may* have been cursory in some cases.

RESULTS

At the outset of this research project, four specific research problems were identified. The results of the research are organized around those four questions and are presented in turn:

1. What staff functions, as recommended in the fire service literature, are appropriate for the Professional Development and Training Division?

The literature review provided several key insights concerning individual functions that must be performed. The NFPA (1992) proposed that training, safety and pre-fire planning be combined. The ICMA (1988) recommended integrating recruitment, selection, training and education, career planning, career counselling, performance appraisal, and health and safety considerations into a single system and

unit. As well as the general performance objectives regularly associated with the training function, the PSSB (1991) included recruitment and community outreach activities in the standard for training officer.

FIREPLAN '94, developed by the Toronto Fire Department Master Fire Plan Steering Committee determined that consolidating training, medical, health, fitness and safety, and recruitment and community outreach into one group best serviced the department and the community. The consensus of the literature review involves combining the training, safety, emergency planning, and recruitment and community outreach functions.

2. What are the training and education needs of the amalgamated Toronto Fire Services?

The literature recommended recruit training, on-going fire fighter training, officer training, safety training and executive development. Members of the Metro Chief's Training Subcommittee, after considering the full range of training and education program offered by all six former fire departments in the years leading up to amalgamation, and anticipating training needs for an amalgamated fire services, recommended that the major program areas include:

- ☐ Recruit training.
- ☐ In-station training - training that takes place in the fire station. The training will be delivered by company officers trained and certified by the Ontario Fire College as trainer/facilitators.
- ☐ General in-service training - training that takes place at one of the five training facilities, usually by training officers.
- ☐ Specialized in-service training:
 - ☐ hazardous materials
 - ☐ heavy urban search and rescue (HUSAR) and its component skills

- ☐ water and ice rescue
- ☐ fireboat and rescue boat operations
- ☐ auto extrication
- ☐ heavy rescue and rescue pumper
- ☐ aerial towers.
- ☐ Officer development for all ranks on the department.

3. What resources and organizational structure are required to effectively meet those needs?

Based on the methodology proposed by Walker (1997), a statistical analysis can determine how many people are needed on each shift to perform specific functions. The next step calculates the number of staff required to maintain minimum staffing levels. This process provides proper documentation to justify each position. Unless otherwise noted, all officer requirements refer to FTE positions.

Recruit Training. The analysis shows that the most efficient model for delivering recruit training is to conduct three classes of 14 weeks duration annually, each with 40 students, to maintain staffing (based on a calculated attrition rate of five percent for total of 2,811 fire fighters). This requires the secondment of eight company officers for 11 of the 14 weeks, three times a year. The result is eight secondments of company officers for 33 weeks per year or four FTE positions. This is in addition to two training officer positions; a total of six training positions assigned to the Fire Academy. Two training officer positions would deal with program development.

Officer Development. The analysis shows the need for four training positions assigned to the Fire Academy.

In-Station Training - North, South, East and West Training Commands. The capacity analysis shows a need for 12 training officer positions for each training command.

The analysis clearly demonstrated the need for 60 FTE positions delivering professional development and training programs. The FTE calculation was verified by multiplying the calculated number of staff required by Walker's AF. When comparing to FTE calculations in Table III there was a difference of five positions; an eight percent margin of error. After review the data and corresponding calculations, it was found that the Toronto Division Chief Training Officer based his calculations on a five day, 42 hour work week (8.4 hour days) as stated in the current collective agreement. In reality, training personnel work a five day, 40 hour work week (8.0 hour days). The researcher, when calculating the AF, used to calculate the FTE, based his calculations on the actual time worked by division personnel.

According to the NFPA (1992), there is an increased need for coordination as the department increases in size and complexity. Toronto Fire Services is now the fourth largest fire department in North America. Due to its size and complexity, extensive coordination is required. The literature is divided on an effective span of control, for supervisors, in non-emergency conditions. The NFPA (1994) suggests five to seven people, while the ICMA (1988) recommends seven to twelve people. Based on the conservative ICMA recommendation for supervisory staff, each training location, with 12 FTE's, would require a district chief. A division chief would supervise the five chief training officers (Toronto Fire Academy, North, South, East and West Command), the Chief Safety Officer, and the Chief Recruitment Officer - a total of seven district chiefs; again within the ICMA recommendation.

From an organizational standpoint, Wedge (1987) proposes four districts. Each "quadrant" could

tailor its services to meet the special needs of specific districts; an inevitable result of demands for standardization and uniformity of service at the time of amalgamation. Four training commands (North, South, East and West), mirroring the four operational commands, would provide the services that Wedge highlights.

4. What options/alternate delivery systems are available to enhance professional development and training initiatives?

The literature review provided several delivery methods. The NFPA (1994) recommended officers in charge of the various staff functions deliver specialized training to their own personnel, coordinated with the training officer. The NFPA also recommended that company officers be responsible for ongoing, in-service training of fire fighters assigned to them. This is similar to the OFM Trainer Facilitator Program (1994) where company officers train crew members in basic maintenance areas. The NFPA also recommended using the resources of other post-secondary institutions to assist and expand professional development opportunities.

The survey of Toronto Fire Services' Chief Training Officers provided a variety of internal delivery options to enhance training initiatives and augment training resources:

- ☐ Shift trainers - on-duty fire fighters with a specific expertise (eg. emergency medical services).

They would be certified to NFPA 1041 Standard for Fire Service Instructor Professional Qualifications, and deliver programs, while on shift, to fire crews.

- ☐ Seconded company officers to assist with recruit training - fire captains would add credibility and an experience component. This experience would serve as professional development for these officers.

❑ Self-study programs - pre-course materials would shorten required training times. In addition, computer-based learning and video-conferencing technologies should be explored.

Clearly, training officers alone do not have to deliver all development programs.

DISCUSSION

The historical analysis conducted in this project through document review compared to the survey results of key players involved in the amalgamation highlighted an obvious difference of opinion. The literature review clearly demonstrated the linkage between the recruitment and community outreach, training, planning and safety functions. Both the NFPA and PSSB standards support this argument - although not mandatory, it is always recommended that a fire department be aware and use recognized industry standards to establish a standard of reasonable care in civil lawsuits. However, the chief training officers of the Metro departments did not consider these functions at all related to training and there was a lack of consensus among the Toronto Division chief officers as to the reporting structure for the new division. At the time of writing, the current TFS executive team planned to separate the functions to some degree. For example, recruitment and community outreach will most likely become an administration function, occupational health and safety and fire ground safety will be separated, and emergency planning will probably not report through the Division Chief, Professional Development and Training. Much of the confusion results from a lack of experience in these areas. The Toronto Division had the resources available to specialize in areas such as recruitment and community outreach, and health, fitness and safety, whereas the other, smaller departments did not. They did not have the

opportunity to realize the benefits of combining the functions.

Walker's (1997) methodology to determine staffing requirements was easily modified for the training function. In today's climate of dwindling dollars and the trend of the City to downsize, this formula helped determine minimum required staffing levels and justify the positions. The study results clearly show the need for at least 60 FTE training officer positions with five district chiefs and one division chief; 66 in total. A previous study completed by the Metro Fire Chiefs (1997) recommended 41 FTE training positions, including supervisory staff. This is based on the current establishments of the previous six departments. Obviously the chiefs considered the status quo as adequate. The discrepancy can be made up by some degree with 12 shift instructors and 4 seconded company officers as outlined in this report. This is still nine FTE positions short.

If the resources are not available to adequately staff the division to meet the required training needs of the department, senior staff must consider other options including regularly taking larger numbers of personnel out of service for training purposes or putting more apparatus on a delayed response, or decreasing the scope of training and education delivered to TFS staff. Taking large numbers of personnel out of service for training is a viable option but it would be at the expense of public fire safety education programs, preventative maintenance, and equipment testing that fire crews routinely undertake. Decreasing the scope of training, especially during the transition period would not be an acceptable option given the immediate demands for standardization and uniformity of service.

Pay Now or Pay Later

City Council and the fire chief must realize the importance of professional training and development and make adequate resources available to the division chief. Through a series of recent

decisions involving negligence claims, the Supreme Court of Canada has expanded the scope of civil liability for municipalities and fire departments. As a result there has been an unprecedented outbreak of liability actions against the Canadian fire service. Training is a reasonable and cost-effective strategy to limit potential exposures.

RECOMMENDATIONS

To meet the professional development and training needs of the amalgamated Toronto Fire Services, the newly created Professional Development and Training Division needs adequate resources and an organizational structure to support effective and efficient service delivery.

As per the results of this research, I recommend that:

1. To best service the needs of TFS, the fire chief organize the department so that the Professional Development and Training Division include the following staff functions: recruitment and community outreach, health, fitness and safety, emergency planning, preparedness and response, and training.
2. To provide the required service level to TFS personnel, the fire chief make the resources available to staff the training section of the division with 66 full time equivalent (FTE) positions that include: division chief (1), chief training officers (5), district training officers (16), training officers (46).
3. As per Recommendation 2., the fire chief approve the organization structure of the Professional Development and Training Division as per Appendix D.

4. To effectively tailor its services to meet the special needs of specific fire districts, the fire chief approve the delivery of training through regional training centres, corresponding to the fire fighting commands.
5. To meet the professional development and training needs of TFS, the division provide training in the following major program areas: recruit training, in-station training, general in-service training, specialized in-service training, and officer development for all ranks.
6. To augment the division's resources, the Division Chief, Professional Development & Training investigate and utilize alternate internal methods of service delivery, including, but not limited to, shift instructors, trainer/facilitators and secondments, as determined by the availability of resources.
7. To complement the resources of the Professional Development and Training Division, eight company officers be seconded for recruit training; four company officers, one from each of the four shifts, for two consecutive courses. The turnover would be staggered so that each course is staffed by four new company officers and four who have just completed the previous course. This would be a professional development opportunity for company officers and with a staggered turnover, provide consistency and quality assurance maintained by central coordination.
8. To assist and expand professional development opportunities, the Division Chief, Professional Development and Training, maintain a continuous audit of Toronto Fire Services' training needs and develop strategic alliances with other post secondary institutions as required.

9. To ensure the continuance of cost-effective services, the Division Chief, Professional Development and Training, develop and apply methods for checking the effectiveness of all training programs.
10. To help offset operating costs, the Division Chief, Professional Development and Training, actively review opportunities for generating revenue and report back to the Deputy Chief.
11. To complete the analysis required for the division, the Division Chief, Professional Development & Training, conduct further research and analysis to determine the required staffing and supporting organization structure for the recruitment and community outreach, and health, fitness and safety functions.

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APPENDIX A

PARAMETERS FOR IN-SERVICE TRAINING WORKSHEET

Inputs

- ☐ **Repeat cycle.** The number of years between repeats of a program (eg. an annual program has a repeat of one, a course done every third year has a repeat of three).
- ☐ **Course length.** The length of each session (hours). Due to the nature of fire fighting shifts, for the purpose of this analysis, each day was considered to be made up of two blocks of three hours.
- ☐ **Number of target personnel.** The number of personnel in the new organization who require the course.
- ☐ **Number of students per class.** Number of students per session, regardless of the length of the session
- ☐ **Instructors per course.** Number of students present in the classroom or on the fire ground for each session. If two instructors share the duties by alternating days or weeks, there is one instructor per course. If they team teach, there are two instructors per course.
- ☐ **Courses per day.** This is a function of the course length. For example, a three hour course = two courses per day. A two day course = $\frac{1}{2}$ course per day.
- ☐ **Daily preparation time.** As a guideline, one hour per day was used for classroom sessions. $1\frac{1}{2}$ hours per day for practical sessions was used. This constituted the daily setup of materials, equipment, training aids, and the administration activities directly related to the course.
- ☐ **Cycle preparation time.** This was the setup and logistical time, in hours, based on six hour days, for scheduling the program, corresponding with platoon chiefs, coordinating with other training officers, etc. This did not include initial program development or instructor development.
- ☐ **Instructor development.** In another area of the analysis general professional development time was addressed. This parameter dealt with the skill and knowledge development specifically related to each course. For this analysis, instructor development was considered necessary every second cycle of the program.
- ☐ **Course development.** This was the time it took a training officer to develop a new program. Some course development times were quite short while others were extremely long (eg. Bronto Aerial Tower operations and high angle rescue).

Outputs

- ☐ **Annual instructor hours.** This indicates the number of hours required, on an annual basis, to maintain a particular program.
- ☐ **Program hours per year.** The number of program hours per year takes into account scheduled and unscheduled absences (vacation, lieu time taken, professional development, breaks, sick time) and the time required for routine non-program related communication and correspondence.
- ☐ **Instructor years.** The annual instructor hours and program hours per year generate a total number of full time equivalent (FTE) positions required to deliver the range of programs with the given frequencies.

APPENDIX B

ASSUMPTIONS

- ☐ The OFM Curriculum will form the basis of Recruit Training.
- ☐ Recruit Training will follow the model of the 14 week Toronto/Vaughan course conducted on a cost-recovery basis in 1997. This course was the first in Ontario to utilize the OFM General Level Curriculum as its basis. Participants were able to complete all Component One skills, as well as targeted skills from later Components. Most notably, the Advanced Emergency Care Modules were included on a pilot basis (these Modules were conducted for 2 subsequent Toronto Recruit courses, with the addition of Firefighter Defibrillation).
- ☐ Recruit Training will be required for approximately 120 hires annually, based on 3000 employees with an average 25 year career, to maintain staffing at current levels.
- ☐ Recruit Training will be conducted using a core of dedicated training staff as co-ordinators, with the bulk of the training being conducted by seconded Company Officers. This has proven to be the most effective strategy for ensuring relevancy.
- ☐ The OFM Curriculum will be utilized for all In-Station Training where applicable.
- ☐ General In-Service Training will be conducted at 2 or 4 locations, each with the capacity to train 32 people per class, or 4 fully staffed apparatus per command area.
- ☐ Hazardous Materials Training will include NFPA 472 Awareness and Operations levels for all staff, Technician level for decontamination units and hazmat pumpers (200 people), and a highly specialized Technician program for 2 dedicated apparatus (40 people).
- ☐ HUSAR Training will consist of Awareness (all staff), Operations (400 people) and Technician (100 people) levels.
- ☐ Water & Ice Rescue, Fireboat & Rescue Boat Training will similarly be divided by level based on service delivery and equipment deployment.
- ☐ Auto Extrication Training will be conducted annually for all Heavy Rescue and Rescue Pumper personnel (total 400 people), with an Awareness component for all staff. Additionally, the Extrication Modules of the OFM Curriculum will continue to be taught to all incoming Recruits.
- ☐ Targeted personnel for Rescue Training programs will be based on 4 Heavy Rescue apparatus and 16 Rescue Pumpers, totalling 400 personnel.
- ☐ Aerial Tower Training will be required for all personnel expected to operate Bronto, Hi-Ranger, Amador or Snozzle apparatus, or any other articulated boom apparatus.
- ☐ Officer Development programs will target all Officer ranks and potential acting Officers (total assumed to be 1250 personnel in most cases).
- ☐ Officer Development programs will be based on Ontario Fire College Fire Technology Diploma becoming a minimum standard for Company Officers, and Advanced Fire Technology Diploma becoming a minimum standard for District Chiefs.
- ☐ Officer Development programs will be augmented by Toronto Fire courses and other courses as required to maintain adherence to policies and practices. A highly aggressive, duly diligent and proactive development philosophy will be applied.

APPENDIX C

Capacity Analysis

Inputs

Officer Development

Course will run 7 hours per day, 5 days per week for 48 weeks annually. Each course will have 32 students, consisting on average of 2 Officers or Officer candidates from each Command on each shift. Each course will be team taught by 2 training staff.

Recruit Training

Each 14 week course will run 8 hours per day, 5 days per week with 40 students and 2 dedicated training staff on average (consistent with above secondment model). A total of 3 courses will be required annually.

In-Service Training, per Training Command

The training facilities in the East and West areas of the city will each host 6 hours of in-service training daily, 5 days per week. Each course will be attended by 32 students (4 fully staffed apparatus from each Command), and be facilitated by 2 training staff, on average.

In-Station Training, per Operational Command

There will be the equivalent of 2, 6 hour in-station programs per Operational Command being delivered daily by training staff. Each program will be attended by 12 personnel, or 3 fully staffed apparatus, on average.

Outputs

The following numbers represent the output per targeted student:

Officer Development

Each Officer or Officer candidate will receive 6 days training annually on average. This translates into completion of a 6 week curriculum within a 5 year period.

Recruit Training

Each Recruit receives 14 weeks of training, as described earlier.

In-Service Training, per Training Command

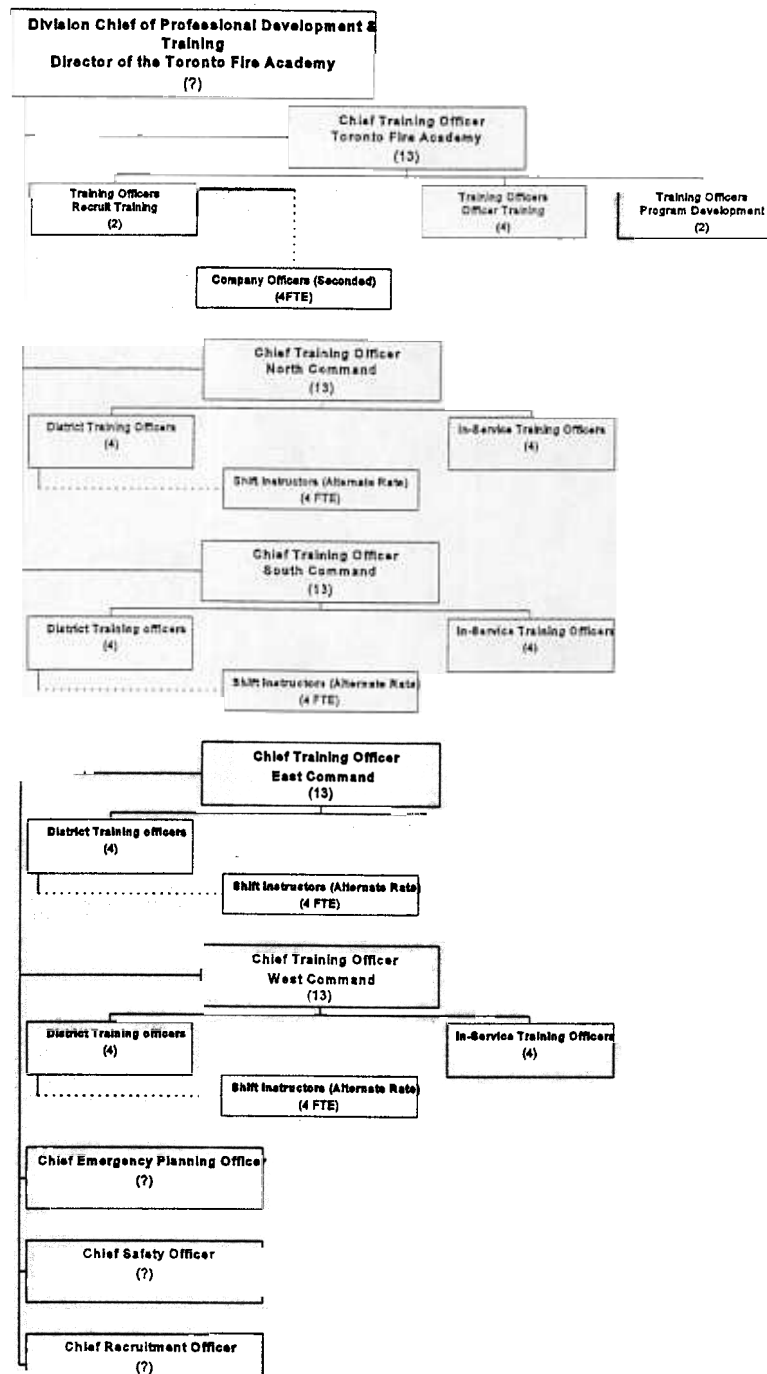
Each student receives approximately 6 days of training annually. This will be broken down into half-day, full-day and 2-day courses as required.

In-Station Training, per Operational Command

Each student receives approximately 8 days of training annually. This will most likely be broken down into half-day programs in most cases.

APPENDIX D

Proposed Organization Structure



TABLE

in-service J worksheet[illegible]

TABLE II

Recruit Course Total Hours to Meet Ontario Standard

day	classroom hours	classroom instructors	classroom admin	up to 24 students per course		37-40 students per course	
				practical hours	practical instructors	practical admin	total hours
1	7	2	2	2.5	1	1.5	13
2	7	2	2	2.5	1	1.5	13
3	7	2	2	2.5	1	1.5	13
4	7	2	2	2.5	1	1.5	13
5	7	2	2	2.5	1	1.5	13
6	7	2	2	2.5	1	1.5	13
7	7	2	2	2.5	1	1.5	13
8	7	2	2	2.5	1	1.5	13
9	7	2	2	2.5	1	1.5	13
10	7	2	2	2.5	1	1.5	13
11	7	2	2	2.5	1	1.5	13
12	7	2	2	2.5	1	1.5	13
13	7	2	2	2.5	1	1.5	13
14	7	2	2	2.5	1	1.5	13
15	7	2	2	2.5	1	1.5	13
16	7	2	2	2.5	1	1.5	13
17	7	2	2	2.5	1	1.5	13
18	7	2	2	2.5	1	1.5	13
19	7	2	2	2.5	1	1.5	13
20	7	2	2	2.5	1	1.5	13
21	7	2	2	2.5	1	1.5	13
22	7	2	2	2.5	1	1.5	13
23	7	2	2	2.5	1	1.5	13
24	7	2	2	2.5	1	1.5	13
25	7	2	2	2.5	1	1.5	13
26	7	2	2	2.5	1	1.5	13
27	7	2	2	2.5	1	1.5	13
28	7	2	2	2.5	1	1.5	13
29	7	2	2	2.5	1	1.5	13
30	7	2	2	2.5	1	1.5	13
31	7	2	2	2.5	1	1.5	13
32	7	2	2	2.5	1	1.5	13
33	7	2	2	2.5	1	1.5	13
34	7	2	2	2.5	1	1.5	13
35	7	2	2	2.5	1	1.5	13
36	7	2	2	2.5	1	1.5	13
37	7	2	2	2.5	1	1.5	13
38	7	2	2	2.5	1	1.5	13
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40	7	2	2	2.5	1	1.5	13
41	7	2	2	2.5	1	1.5	13
42	7	2	2	2.5	1	1.5	13
43	7	2	2	2.5	1	1.5	13
44	7	2	2	2.5	1	1.5	13
45	7	2	2	2.5	1	1.5	13
46	7	2	2	2.5	1	1.5	13
47	7	2	2	2.5	1	1.5	13
48	7	2	2	2.5	1	1.5	13
49	7	2	2	2.5	1	1.5	13
50	7	2	2	2.5	1	1.5	13
51	7	2	2	2.5	1	1.5	13
52	7	2	2	2.5	1	1.5	13
53	7	2	2	2.5	1	1.5	13
54	7	2	2	2.5	1	1.5	13
55	7	2	2	2.5	1	1.5	13
56	7	2	2	2.5	1	1.5	13
57	7	2	2	2.5	1	1.5	13
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59	7	2	2	2.5	1	1.5	13
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73	7	2	2	2.5	1	1.5	13
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76	7	2	2	2.5	1	1.5	13
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84	7	2	2	2.5	1	1.5	13
85	7	2	2	2.5	1	1.5	13
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93	7	2	2	2.5	1	1.5	13
94	7	2	2	2.5	1	1.5	13
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96	7	2	2	2.5	1	1.5	13
97	7	2	2	2.5	1	1.5	13
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99	7	2	2	2.5	1	1.5	13
100	7	2	2	2.5	1	1.5	13
101	7	2	2	2.5	1	1.5	13
102	7	2	2	2.5	1	1.5	13
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104	7	2	2	2.5	1	1.5	13
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139	7	2	2	2.5	1	1.5	13
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157	7	2	2	2.5	1	1.5	13
158	7	2	2	2.5	1	1.5	13
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160	7	2	2	2.5	1	1.5	13
161	7	2	2	2.5	1	1.5	13
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163	7	2	2	2.5	1	1.5	13
164	7	2	2	2.5	1	1.5	13
165	7	2	2	2.5	1	1.5	13
166	7	2	2	2.5	1	1.5	13
167	7	2	2	2.5	1	1.5	13
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175	7	2	2	2.5	1	1.5	13
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177	7	2	2	2.5	1	1.5	13
178	7	2	2	2.5	1	1.5	13
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180	7	2	2	2.5	1	1.5	13
181	7	2	2	2.5	1	1.5	13
182	7	2	2	2.5	1	1.5	13
183	7	2	2	2.5	1	1.5	13
184	7	2	2	2.5	1	1.5	13
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187	7	2	2	2.5	1	1.5	13
188	7	2	2	2.5	1	1.5	13
189	7	2	2	2.5	1	1.5	13
190	7	2	2	2.5	1	1.5	13
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197	7	2	2	2.5	1	1.5	13
198	7	2	2	2.5	1	1.5	13
199	7	2	2	2.5	1	1.5	13
200	7	2	2	2.5	1	1.5	13
201	7	2	2	2.5	1	1.5	13
202	7	2	2	2.5	1	1.5	13
203	7	2	2	2.5	1	1.5	13
204	7	2	2</				

TABLE III

Capacity Analysis

<i>Training Program</i>	<i>Weeks Per Year</i>	<i>Hours Per Week</i>	<i>Annual Training Hours</i>	<i>Training Officers Per Course</i>	<i>Annual Staff Hours</i>	<i>Full Time Equivalent (FTE)</i>
Recruit	42	40	1680	2	3360	3.7
Officer Development	48	35	1680	2	3360	3.7
In-Service West	48	30	1440	2	2880	3.2
In-Service East	48	30	1440	2	2880	3.2
In-Station North Command	48	60	2880	4	11520	12.8
In-Station South Command	48	60	2880	4	11520	12.8
In-Station West Command	48	60	2880	4	11520	12.8
In-Station East Command	48	60	2880	4	11520	12.8
Total				24		65.0
Assignment Factor				2.5		
Full Time Equivalent (FTE)				60		65

TABLE IV

Leave Taken - Annual Basis

<i>Leave Type</i>	<i>Total Hours</i>	<i>Average Hours per Employee / Year</i>
Vacation	3064	161.3
Statutory Holidays/Float Day	1824	96
Lieu Time	1455	76.6
Sick Time	504	26.5
Family Illness	124	6.5
TOTALS	6971	366.9 = 367 hours/year

Professional Development and Training - Annual Basis

Training (internal/external), Seminars, Conferences (Total 2,652 hours) = 139.6 = 140 hours/year

Sample = 1997 totals for Toronto Division's Training & Development, Health, Fitness & Safety, and Recruitment & Community Outreach Sections; 19 full time, permanent staff.

Average Number of Regularly Scheduled Days Off (RSDO)

$$\text{RSDO} = \frac{(\text{Total Time Period}) \times (\text{Number of Off-Duty Days in Duty Cycle})}{\text{Duty Cycle Length (Days)}}$$

Training officers work a 5/7 schedule (40 hour work week with 5 - 8 hour days / 2 days off)

$$\text{RSDO} = \frac{365 \times 2}{7} = 104.3 \text{ Days} = 104.3 \times 8 \text{ (length of shift)} = 834.4 = 834 \text{ hours}$$

Assumption: 5/7 shift schedule equals 2,920 hours of available time (365 X 8). Subtract days off (834 hours), leave taken (367 hours), professional development and training (140 hours) and the result is 1,579 hours or 197 (197.3) days available to work.

Staff are entitled to 1 hours per day for lunch and breaks during their 8 hour shift X 209 (average number of days worked per employee) results in 209 hours of break time, per year, per employee.

On average, staff spend 1 hour per day for routine correspondence and communication (telephone, E-mail, etc.) during their 8 hour shift X 209 (average number of days worked per employee) results in 209 hours of administrative time, per year, per employee.

The total unavailable time per employee, per year, is therefore $834 + 367 + 140 + 209 + 209 = 1,759$ hours. The unavailable time is used to calculate the assignment factor.

Assignment Factor (AF)

$$AF = \frac{\text{Total Hours Required to Cover One Shift Position Every Day for One Year}}{\text{Average Number of Hours Worked Per Year Per Employee}}$$

$$\frac{\text{Total Work Time Available (One Year)}}{\text{Total Work Time Available (One Year) - Average Time Off Per Employee Per Year}}$$

$$\frac{365 \times 8}{(365 \times 8) - \text{Average Time Off Per Employee Per Year}}$$

$$\frac{365 \times 8}{(365 \times 8) - 1,759} = \frac{2,920}{2,920 - 1,759} = \frac{2,920}{1,161} = 2.5$$

Therefore, it will require 2.5 full time equivalents (FTE) to cover each staff person per shift.